

EFFECTS OF SHEAR REINFORCEMENT ON  
MODULUS OF RUPTURE IN CONCRETE  
BEAM

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B. ENG(HONS.) CIVIL ENGINEERING

UNIVERSITI MALAYSIA PAHANG

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CONCRETE BEAM

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Thesis submitted in fulfilment of the requirements  
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## **SUPERVISOR'S DECLARATION**

I hereby declare that I have checked this thesis and in my opinion, this thesis is adequate in terms of scope and quality for the award of the Bachelor Degree of B. Eng (hons.) Civil Engineering

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## **STUDENT'S DECLARATION**

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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## LIST OF SYMBOLS

$\text{N/mm}^2$	Newton per millimetre square
kN	Kilo Newton
N	Newton
mm	Millimetre
m	Metre
Mpa	Megapascal

## **LIST OF ABBREVIATIONS**

BS EN	British Standard European Norm
ASTM	American Standard Test Method
MS	Malaysian Standard
OPC	Ordinary Portland Cement